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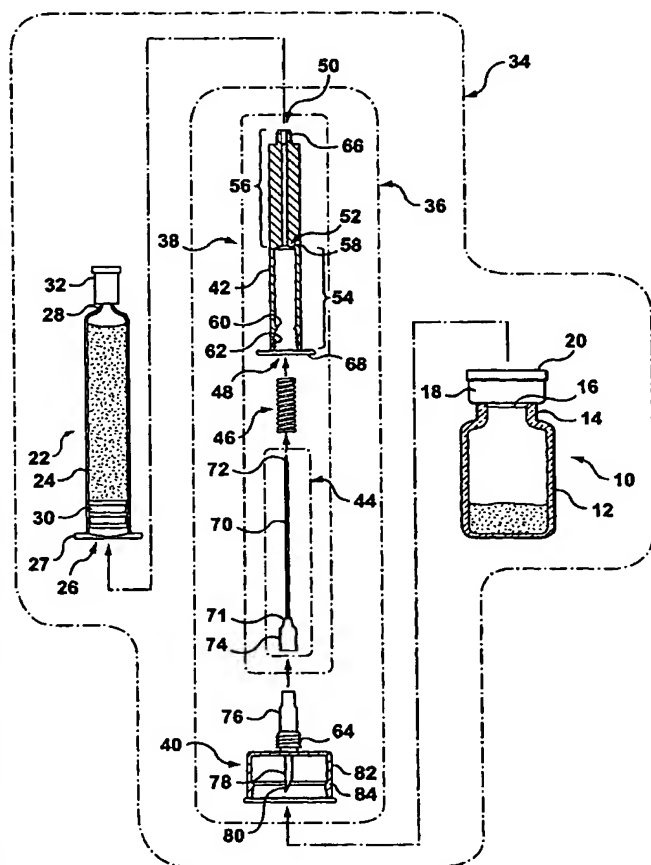
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[Continued on next page]

(54) Title: PHARMACEUTICAL DELIVERY SYSTEMS AND METHODS FOR USING SAME



(57) Abstract: The present invention provides for an assembly for transferring a fluid between a vessel having a body with an open end and a slidable piston positioned within the body and a vial having a penetrable seal. The assembly includes a housing having first and second open ends, and a bore extending between the first and second open ends. The housing is removably connectable to the piston. The assembly also includes a conduit having first and second ends and first and second apertures adjacent to the first and second ends, respectively. The conduit is longitudinally slidable within the bore between a retracted position in which the first aperture is positioned within at least one of the housing and the piston when the housing is connected to the piston, and an activated position in which the first aperture protrudes through the piston into the body of the vessel when the housing is connected to the piston. The assembly further includes a vial socket assembly having a vial socket for receiving and engaging at least a portion of the vial including the penetrable seal and a hollow piercing member having a first open end in fluid communication with the conduit and a second open end for piercing the penetrable closure. The vial socket assembly is moveable longitudinally relative to the housing in concert with the conduit.

WO 2004/064706 A2



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INTERNATIONAL SEARCH REPORT

International Application No

PCT/CA2004/000064

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61J1/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61J A61M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	US 4 180 070 A (GENESE JOSEPH N) 25 December 1979 (1979-12-25) the whole document	1,2, 9-14,21 3-8, 15-20, 22-24
X A	US 5 393 497 A (SMEDLEY WILLIAM H ET AL) 28 February 1995 (1995-02-28) column 5, line 47 - column 6, line 30; figures 3-8	1,2, 9-14,21 3-8, 15-20, 22-24
A	WO 00/13723 A (MEYER GABRIEL ; OWEN MUMFORD LTD (GB)) 16 March 2000 (2000-03-16) page 12, line 7 - page 13, line 12; figures 9A-9D	1-24
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

18 June 2004

Date of mailing of the international search report

17. 09. 2004

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INTERNATIONAL SEARCH REPORT

International Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 569 191 A (MEYER GABRIEL) 29 October 1996 (1996-10-29) figures 1-4	1-24
A	GB 1 372 549 A (IMS LTD) 30 October 1974 (1974-10-30) figures 3,4	1-24

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CA2004/000064

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-24

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-24

Assembly for transferring a fluid between a vessel with a piston and a vial, comprising a housing, a conduit and a vial socket assembly.

2. claims: 25-28

Piston backstop for use with a syringe, comprising a bottom plate, a pair of top plate extensions, a pair of side walls and a retainer member.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/CA2004/000064

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4180070	A	25-12-1979	NONE	
US 5393497	A	28-02-1995	AU 5132993 A WO 9406690 A1	12-04-1994 31-03-1994
WO 0013723	A	16-03-2000	AU 5639099 A WO 0013723 A2	27-03-2000 16-03-2000
US 5569191	A	29-10-1996	DE 69317650 D1 DE 69317650 T2 DK 625917 T3 EP 0625917 A1 JP 7506287 T AT 164315 T CA 2130122 A1 WO 9413344 A1 ES 2115201 T3	30-04-1998 08-10-1998 28-09-1998 30-11-1994 13-07-1995 15-04-1998 16-06-1994 23-06-1994 16-06-1998
GB 1372549	A	30-10-1974	AT 342752 B AT 877471 A AU 3256971 A BE 773629 A1 CA 985976 A1 CH 537193 A DE 2149550 A1 FR 2144178 A5 HK 2877 A IE 35733 B1 IL 37967 A IT 942146 B MY 11677 A NL 7110645 A ,B, NO 128980 B SE 384800 B US 3923059 A ZA 7107009 A	25-04-1978 15-08-1977 22-02-1973 31-01-1972 23-03-1976 31-05-1973 18-01-1973 09-02-1973 21-01-1977 12-05-1976 22-05-1975 20-03-1973 31-12-1977 03-01-1973 11-02-1974 24-05-1976 02-12-1975 26-07-1972